Class II Permissive Change
of
Wireless LAN Access Point

Applicant	**:**	ASUSTek Computer Inc.
EUT	**:**	Wireless LAN Access Point
Model No.	**:**	WL-300g
FCC ID	**:**	MSQWL300G
Report No.	**:**	A5415847

Tested by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440

No. 255, Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (1992) as a reference. All test were conducted by ***Training Research Co., Ltd.***, 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart B (Declaration of Conformity) and C Section 15.247.

Applicant	**:**	ASUSTek Computer Inc.
Applicant address	**:**	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Product Name	**:**	Asus SapceLink WLAN Access Point
Model Name	**:**	WL-300g
FCC ID	**:**	MSQWL300G
Report No.	**:**	A5415847
Test Date	**:**	August 25, 2003

Prepared by: Jack Tsai **Approved by:** Frank Tsai

Conditions of issue :

(1) ***This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.***

(2) ***This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.***

★ ***NVLAP LAB CODE: 200174-0***

Federal Communications Commission
Declaration of Conformity
(DoC)

For the Following Equipment:

Product name : Asus SapceLink WLAN Access Point
Model name : WL-300g
Trade name : ASUS

Is herewith confirmed and found to comply with the requirements of CFR 47 part15 Subpart B - Unintentional Radiators regulation. The results of electromagnetic mission evaluation are shown in the report number : A5415847

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation

Manufacturer	*USA local representative*
Company name: **ASUSTeK Computer Inc.**	**To be determined**
Computer address: **4/F, 150, Li-Te Rd., Peitou, Taipei, Taiwan**	
ZIP / Postal code **112**	
Contact person: **Lawrence Yu**	
Title: **Manager**	
Internet e-mail address: **Lawrence_yu@asus.com.tw**	
Tel / Fax: **886-2-28943447 / 886-2-28950113**	

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Ⅰ. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of applicant in support that the certification in accordance with Part 2 Subpart J and Part 15 Subpart A, B and C of the Commission's Rules and Regulations.

1.2 Description of EUT

Product Name	:	Asus SapceLink WLAN Access Point
Model Name	:	WL-300g
Granted FCC ID	:	MSQWL300G
Frequency Range	:	2.412 GHz ~ 2.462GHz
Support Channel	:	11 Channel
Modulation Skill	:	DBPSK, DQPSK, CCK, OFDM
Power Type	:	(1) Switching power supply Mfg.: DELTA ELECTRONICS, INC.； Model: ADP-10SB REV.CH I/P: 100-240Vac, 50-60Hz, 0.4A；O/P: 5VDC, 2A (2) POE M/N: PD-PH-6001/AC/48；S/N: A02486040000118 I/P: 100-240Vac, 50-60Hz; 0.34A – 0.17A

1.3 Test method

1 Connect the EUT with the computer through the LAN card. Using the LAN port of computer and software to control the EUT.

2 The software provided by the manufacturer to control the EUT in the continuous transmission mode, the test is performed under those specific conditions.

3 Set different channel being tested and repeat the procedures above.

(a) Radiated for intentional test:

making EUT to the mode of continuous transmission

(b) Conducted and Radiated for unintentional test:

making EUT to the linking (Rx/Tx) mode with support equipments

1.4 Description of Support Equipment

In order to construct the minimum testing, following equipment were used as the support units.

Printer	**:**	**HP**
Model No.	:	C6464A
Serial No.	:	TH16LEB5PK
FCC ID	:	N/A, DoC Approved
檢磁	:	3892H381
Power type	:	Switching adaptor
Power cord	:	Non-shielded, 173cm long, No ferrite core (between adaptor and AC source) Non-shielded, 180cm long, with ferrite core (between printer and adaptor)
Data cable	:	Shielded, 1.70m long, No ferrite core
Fax/Modem	**:**	**Aceex**
Model No.	:	DM-1414
Serial No.	:	9010582
FCC ID	:	IFAXDM1414
Power type	:	110 VAC / 50 ~ 60 Hz, Switching
Power Cord	:	Non-shielded, 1.90m long, Plastic hoods, and no ferrite bead
Data Cable	:	RS-232→Shielded, 1.30m long, Metal hoods , No bead RJ-11Cx2→Non-shielded, 7’ long, Plastic hoods, No bead
USB Gamepad	**:**	**Rockfire**
Model No.	:	QF-337uv
Serial No.	:	10600545, KR91379759
FCC ID	:	None (CE approval)
檢磁	:	3862A574
Power type	:	By computer
Data Cable	:	Shielded, 1.81m long, Plastic, with ferrite core
WLAN Card	**:**	**Gemtek Technology Co., Ltd.**
Model No.	:	C911003
FCC ID	:	MXF-C911003

PC	**:**	**HP Pavilion**
Model No.	:	P8574A
Serial No.	:	TW21920435
FCC ID	:	Doc Approved
檢磁	:	3902H097
Power type	:	100 ~ 127VAC / 4A, 200 ~ 240VAC/2A, 50 ~ 60Hz, 5A, Switching
Power cord	:	Non-shielded, 2.33 m length, Plastic hood, No ferrite core

Monitor	**:**	**HP 15' Color Monitor**
Model No.	:	D2827A
Serial No.	:	KR91161719
FCC ID	:	C5F7NFCMC1518X
檢磁	:	3872B039
Power type	:	110 ~ 240 VAC / 50 ~ 60 Hz, Switching
Power cord	:	Shielded, 1.83m long, No ferrite core
Data cable	:	Shielded, 1.46m long, with two ferrite cores

Keyboard	**:**	**HP**
Model No.	:	5187-0343
Serial No.	:	BE21700404
FCC ID	:	Doc Approved
檢磁	:	3892C981
Data cable	:	Shielded, 1.73m length, Plastic hood, No ferrite core

Mouse	**:**	**HP**
Model No.	:	M-S34
Serial No.	:	LZB90714106
FCC ID	:	DZL211029
檢磁	:	4862A011
Power cord	:	Non-shielded, 1.88m long, No ferrite core

Notebook	**:**	**ASUSTek Computer**
Model No.	:	AB00F
Serial No.	:	24NP016361
FCC ID	:	DoC Approved
BSMI	:	41016012
Power type	:	100 ~ 240VAC, 1A 50/60 Hz, Switching

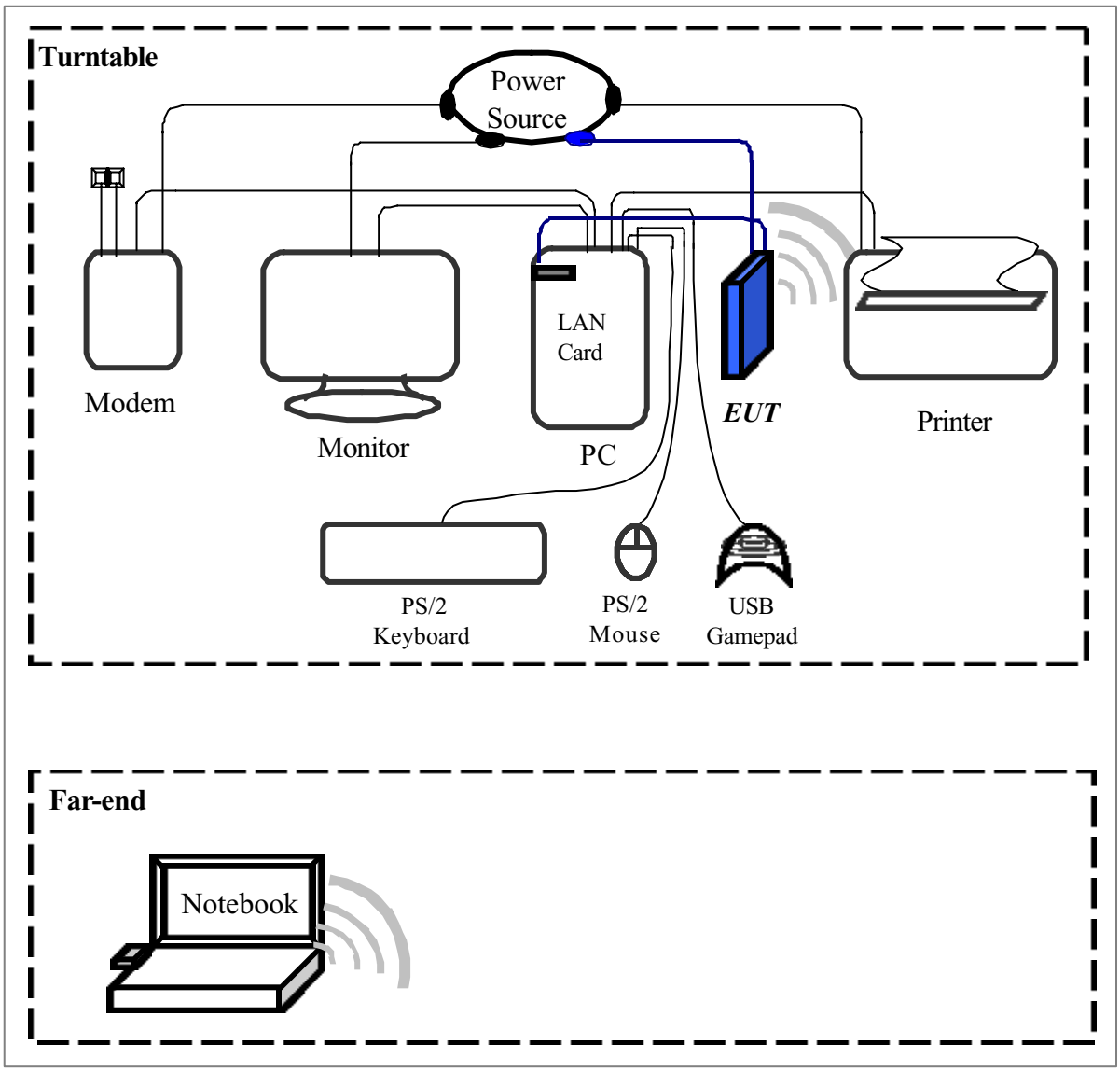
Adaptor of PC	**:**	**LITE-ON Electronics, Inc.**
Model No.	:	PA-1530-01
Serial No.	:	00151184
FCC ID	:	Doc Approved
檢磁	:	3882B259
Power cable	:	Non-shielded, 1.72m length, Plastic hood, No ferrite core (Between power adaptor and AC power source)
Power cable	:	Shielded, 1.48m length, Plastic hood, with ferrite core (Between power adaptor and notebook)

HUB	**:**	**D-Link**
Model No.	:	DGS-1008T
FCC ID	:	N/A, DoC Approved
Power type	:	I/P: 100 ~ 240vac, 50 ~ 60 Hz, 0.7A
Power cord	:	Non-shielded, no ferrite core, 1.90m long

Injector (POE)	**:**	**Lucent Technologies**
Model No.	:	PD-PH-6001/AC/48
Serial No.	:	A02486040000118
Power type	:	I/P: 100-240Vac, 50-60Hz; 0.34A – 0.17A
FCC ID	:	N/A, DoC Approved
Data cord	:	RJ45, non-shielded, no ferrite core
Power cord	:	Non-shielded, 2.5m long, 3-PIN Plastic, No ferrite core

1.5 Configuration of System Under Test

(Conducted and Radiated of unintentional, powered by adaptor)



Connections of Equipment

Adaptor of AP: *Power Cable --- 170cm long, non-shielded, with ferrite core

AP: *RJ45 Cable --- 120cm (far-end 30m) long, non-shielded, no ferrite core

PC: *Parallel Port --- a printer

*VGA Port --- a monitor

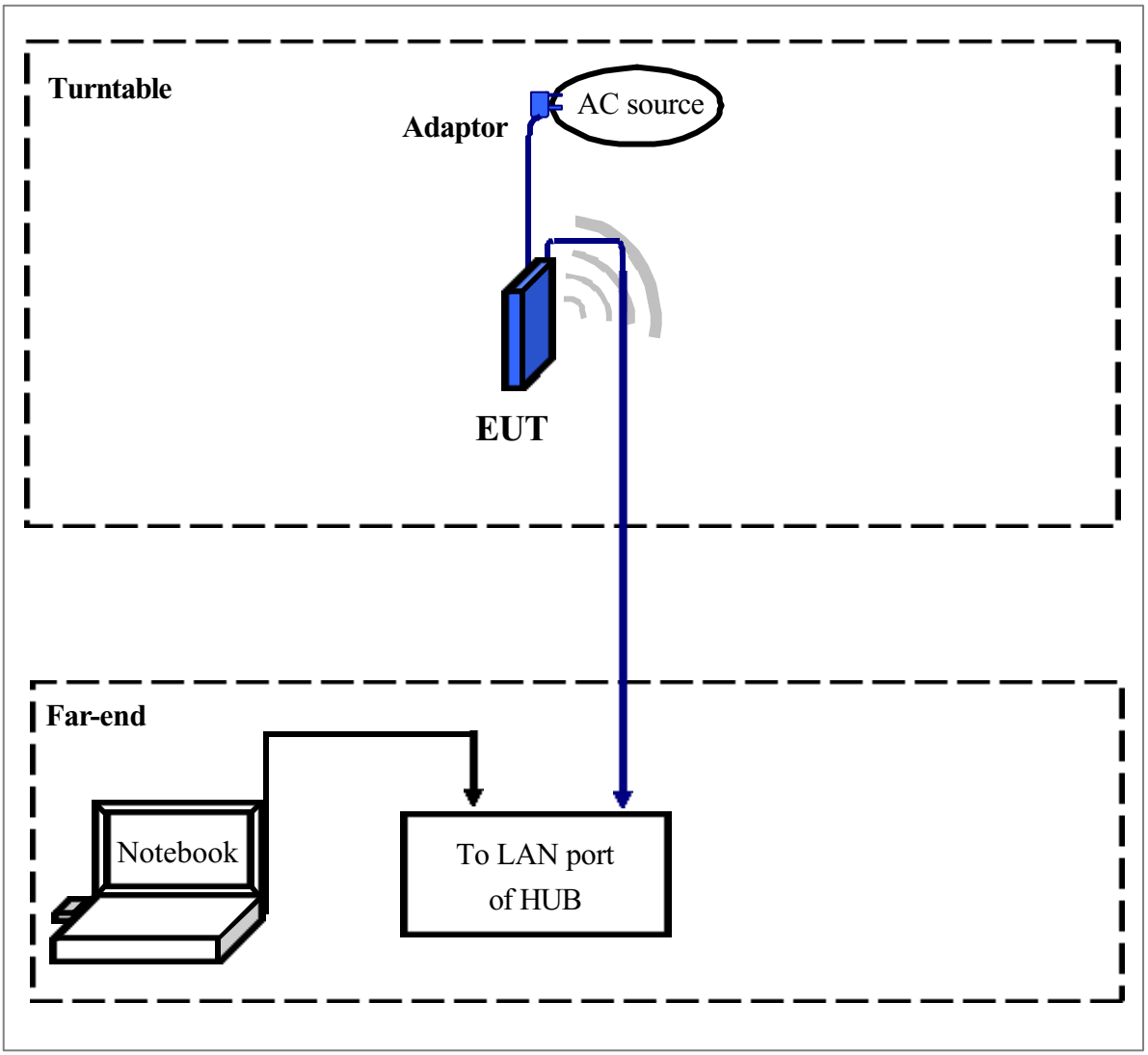
*Serial Port --- an external modem

*PS/2 Port --- a PS/2 keyboard and PS/2 mouse

*USB Port --- a USB gamepad

*LAN Interface --- **EUT**

(Radiated of intentional, powered by adaptor)



The tests below are carried with the EUT transmitter set at high power in TDD mode. The EUT is forced to select of output power level and channel number by notebook computer.

The setting up procedure was recorded in 1.3 test method.

1.6 Verify the Frequency and Channel

Channel	Frequency (GHz)
1	2.412
2	2.417
3	2.422
4	2.427
5	2.432
6	2.437
7	2.442
8	2.447
9	2.452
10	2.457
11	2.462

Note:

1. This is for confirming that all frequencies are in 2.412GHz to 2.462GHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz.
   (The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 2.412GHz to 2.462GHz. So all the items as followed in testing report are need to test these three frequencies:
   Top: Channel – 1; Middle: Channel – 6; Bottom: Channel – 11.

1.7 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (1992) and the pre-setup was written on 1.3 test method, the detail setup was written on each test item.

1.8 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter**, **Anechoic Chamber (Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a anechoic chamber also located at Training Research Co., Ltd.

No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.9 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions, which the EUT was considered likely to encounter in normal use were investigated.

In test, they were set in high power and continuously transmitting mode that controlled by computer. The ch01, ch06 and ch11 of EUT were all tested. The setting up procedure is recorded on 1.3 test method.

II. Section 15.101(a): Equipment authorization of unintentional radiators

The EUT equipped with a LAN interface and should be operated with the computer. It was categorized to *Class B personal computers and peripherals* as cannot be operated stand-alone. The authorization requires **Declaration of Conformity (DoC)** and the items required such as Sect.15.107 (Conducted limits) and Sect.15.109 (Radiated emission limits) is same as Sect.15.207 and 15.247(C).

III. Section 15.203: Antenna requirement

The EUT has an integral antenna inside the housing. In addition, there is no external antenna or external connector employed. The antenna requirement stated in Sect.15.203 is inapplicable to this EUT.

IV. Section 15.207: Power Line Conducted Emissions for AC Powered Units

4.1 Test Condition & Setup

The power line conducted emission measurements were performed in an anechoic chamber. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer (or EMI receiver) was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPER quasi-peak and average detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.4.

There is a test condition apply in this test item, the test procedure description as <1.3>. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

4.2 List of Test Instruments

				Calibration Date	
Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	HP	3520A00242	07/28/03	07/28/04
RF Filter Section	85460A	HP	3448A00217	07/28/03	07/28/04
LISN (EUT)	LISN-01	TRC	9912-03,04	07/21/03	07/21/04
LISN (Support E.)	LISN-01	TRC	9912-05	06/21/03	06/21/04
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	11/20/02	11/20/03

The level of confidence of 95%, the uncertainty of measurement of conducted emission is ± 2.02 dB.

4.3 Test Result of Power Line Conducted Emissions

EUT station transmit only

The following table shows a summary of the highest emissions of power line conducted emissions on the LIVE and NETURAL conductors of the EUT power cord. Show as follows.

Test Conditions: Temperature : 25 °C Humidity : 73 % RH

Table 1 Test mode: Powered by adaptor, 802.11b, Channel 1

Power Connected Emissions					*FCC Class B*		
Conductor	*Frequency (KHz)*	*Peak (dBμV)*	*QP (dBμV)*	*Average (dBμV)*	*QP-limit (dBμV)*	*AVG-limit (dBμV)*	*Margin (dB)*
Line 1	205.000	48.06	---	---	64.43	54.43	-6.37
	409.000	38.98	---	---	58.60	48.60	-9.62
	456.000	37.09	---	---	57.26	47.26	-10.17
	824.000	28.02	---	---	56.00	46.00	-17.98
	1102.000	27.62	---	---	56.00	46.00	-18.38
	1801.000	28.68	---	---	56.00	46.00	-17.32
	5080.000	30.89	---	---	60.00	50.00	-19.11
Line 2	205.000	49.55	---	---	64.43	54.43	-4.88
	380.000	38.86	---	---	59.43	49.43	-10.57
	504.000	34.74	---	---	56.00	46.00	-11.26
	824.000	26.63	---	---	56.00	46.00	-19.37
	1518.000	31.65	---	---	56.00	46.00	-14.35
	1783.000	29.80	---	---	56.00	46.00	-16.20
	5240.000	30.20	---	---	60.00	50.00	-19.80

NOTE:

(1) Margin = Peak Amplitude – Limit, *The reading amplitudes are all under limit.*

(2) A "+" sign in the margin column means the emission is OVER the Class B Limit and "–" sign of means UNDER the Class B limit

Table 2 Test mode: Powered by adaptor, 802.11b, Channel 6

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	205.000	48.03	---	---	64.43	54.43	-6.40
	380.000	37.96	---	---	59.43	49.43	-11.47
	409.000	37.82	---	---	58.60	48.60	-10.78
	867.000	27.44	---	---	56.00	46.00	-18.56
	963.000	27.99	---	---	56.00	46.00	-18.01
	1678.000	28.24	---	---	56.00	46.00	-17.76
Line 2	205.000	48.40	---	---	64.43	54.43	-6.03
	387.000	38.45	---	---	59.23	49.23	-10.78
	405.000	38.01	---	---	58.71	48.71	-10.70
	867.000	26.45	---	---	56.00	46.00	-19.55
	1477.000	31.62	---	---	56.00	46.00	-14.38
	5030.000	32.38	---	---	60.00	50.00	-17.62

Table 3 Test mode: Powered by adaptor, 802.11b, Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	203.000	47.94	---	---	64.49	54.49	-6.55
	359.000	37.98	---	---	60.03	50.03	-12.05
	405.000	38.76	---	---	58.71	48.71	-9.95
	456.000	34.50	---	---	57.26	47.26	-12.76
	592.000	28.31	---	---	56.00	46.00	-17.69
	5390.000	31.28	---	---	60.00	50.00	-18.72
Line 2	203.000	47.47	---	---	64.49	54.49	-7.02
	363.000	38.15	---	---	59.91	49.91	-11.76
	409.000	37.66	---	---	58.60	48.60	-10.94
	452.000	35.73	---	---	57.37	47.37	-11.64
	1534.000	29.43	---	---	56.00	46.00	-16.57
	1801.000	30.11	---	---	56.00	46.00	-15.89

Table 4 Test mode: Powered by adaptor, 802.11g, Channel 1

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	205.000	47.29	---	---	64.43	54.43	-7.14
	405.000	38.71	---	---	58.71	48.71	-10.00
	452.000	35.50	---	---	57.37	47.37	-11.87
	1081.000	28.47	---	---	56.00	46.00	-17.53
	1629.000	29.14	---	---	56.00	46.00	-16.86
	5080.000	30.77	---	---	60.00	50.00	-19.23
Line 2	205.000	47.15	---	---	64.43	54.43	-7.28
	355.000	37.96	---	---	60.14	50.14	-12.18
	384.000	37.51	---	---	59.31	49.31	-11.80
	456.000	35.43	---	---	57.26	47.26	-11.83
	509.000	33.70	---	---	56.00	46.00	-12.30
	1437.000	31.12	---	---	56.00	46.00	-14.88

Table 5 Test mode: Powered by adaptor, 802.11g, Channel 6

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	205.000	46.49	---	---	64.43	54.43	-7.94
	377.000	37.39	---	---	59.51	49.51	-12.12
	405.000	37.82	---	---	58.71	48.71	-10.89
	767.000	27.88	---	---	56.00	46.00	-18.12
	1070.000	28.97	---	---	56.00	46.00	-17.03
	1613.000	29.02	---	---	56.00	46.00	-16.98
Line 2	203.000	47.52	---	---	64.49	54.49	-6.97
	373.000	37.51	---	---	59.63	49.63	-12.12
	409.000	38.12	---	---	58.60	48.60	-10.48
	456.000	36.37	---	---	57.26	47.26	-10.89
	1598.000	28.33	---	---	56.00	46.00	-17.67
	1818.000	28.70	---	---	56.00	46.00	-17.30

Table 6 Test mode: Powered by adaptor, 802.11g, Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	203.000	47.31	---	---	64.49	54.49	-7.18
	363.000	38.34	---	---	59.91	49.91	-11.57
	405.000	37.80	---	---	58.71	48.71	-10.91
	466.000	34.71	---	---	56.97	46.97	-12.26
	1613.000	28.45	---	---	56.00	46.00	-17.55
	5360.000	31.07	---	---	60.00	50.00	-18.93
Line 2	205.000	46.75	---	---	64.43	54.43	-7.68
	409.000	38.57	---	---	58.60	48.60	-10.03
	461.000	35.12	---	---	57.11	47.11	-11.99
	1661.000	30.89	---	---	56.00	46.00	-15.11
	4952.000	31.41	---	---	56.00	46.00	-14.59
	5970.000	31.10	---	---	60.00	50.00	-18.90

Table 7 Test mode: Powered by adaptor, Standby mode

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	205.000	47.71	---	---	64.43	54.43	-6.72
	373.000	39.16	---	---	59.63	49.63	-10.47
	456.000	35.92	---	---	57.26	47.26	-11.34
	1102.000	28.70	---	---	56.00	46.00	-17.30
	1661.000	30.13	---	---	56.00	46.00	-15.87
	5080.000	30.64	---	---	60.00	50.00	-19.36
Line 2	201.000	47.15	---	---	64.54	54.54	-7.39
	380.000	39.28	---	---	59.43	49.43	-10.15
	461.000	35.96	---	---	57.11	47.11	-11.15
	695.000	27.17	---	---	56.00	46.00	-18.83
	1661.000	31.37	---	---	56.00	46.00	-14.63
	1836.000	28.88	---	---	56.00	46.00	-17.12

V. Section 15.247 (a): Technical description of the EUT

Based on the Section 2.1, *Direct Sequence System* is a spread spectrum system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high speed code sequence dominates the "modulating function" and is the direct cause of the wide spreading of the transmitted signal. In the operational description demonstrates the operation principles of the Baseband processor employed by the EUT, shows that which is a complete DSSS baseband processor and meets the definition of the Direct sequence spread spectrum system.

VI. Section 15.247 (C): Spurious Emissions (Radiated)

6.1 Test Condition & Setup

We' d performed the test by the *radiated emission* skill: The EUT was placed in an anechoic chamber, and set the EUT transmitting continuously and scanned at 3-meter distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration, which produced the highest emissions was noted so it could be reproduced later during the final tests. For the measurement above 1GHz, according to the guidance we' d set the spectrum analyzer' s 6dB bandwidth RBW to 1MHz.

This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, anechoic chamber. The EUT system was placed on a nonconductive turntable, which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8546A EMI Receiver, CHASE whole range Bi-log antenna (Model No.: CBL 6141A) is used to measure frequency from 30 MHz to 1GHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. There are two spectrum analyzers use on this testing, HP 85460A for frequency 30MHz to 1000MHz, and 8564E for frequency 1GHz to 25GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6dB bandwidth was set to 120KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1GHz to 25GHz) and the analyzer was operated in the maximum hold mode. There is a test condition applies in this test item, the test procedure description as the following:

Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11). The setting up procedure is recorded on <1.3>

With the transmitter operating from a AC source and using the internal of EUT, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to upper, middle and bottom channels in the 2400 ~ 2483.5 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBμV/m) is determined by algebraically adding the measured reading in dBμV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency. Since the EUT was set to transmit continuously, no *duty cycle* is present.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBμV) + Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Amplifier Gain

6.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	HP	3520A00242	07/28/03	07/28/04
RF Filter Section	85460A	HP	3448A00217	07/28/03	07/28/04
Bi-log Antenna	CBL 6141A	CHASE	4206	05/27/03	05/27/04
Auto Switch Box (>30MHz)	ASB-01	TRC	9904-01	11/20/02	11/20/03
Spectrum Analyzer	8564E	HP	3720A00840	07/23/03	07/23/04
Microwave Preamplifier	84125C	HP	US36433002	07/30/03	07/30/04
Horn Antenna	3115	EMCO	9104-3668	12/24/02	12/24/03
Horn Antenna	RA42-K-F-4B-C	CMT	961505-003	02/01/03	02/01/04
Anechoic Chamber (cable calibrated together)				05/20/03	05/20/04

The level of confidence of 95% , the uncertainty of measurement of radiated emission is ± 3.44dB.

6.3 Test Result of Spurious Radiated Emissions

EUT's transmit only

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. are recorded on the following.

Test Conditions: Temperature : 25 ° C Humidity : 73 % RH

Table 8 Test mode: 802.11g, Channel 1 [Antenna polarity Horizontal]

Radiated Emission				*Correction Factors*	*Corrected Amplitude*	*FCC Class B (3 m)*	
Frequency (MHz)	*Amplitude (dBμV)*	*Ant. H. (m)*	*Table (°)*	*(dB)*	*(dBμV/m)*	*Limit (dBμV/m)*	*Margin (dB)*
103.96	27.45	1.00	353	-0.53	26.92	43.50	-16.58
125.79	26.95	1.00	3	-1.51	25.44	43.50	-18.06
143.97	31.44	1.00	280	-1.98	29.46	43.50	-14.04
251.89	29.71	1.00	244	-2.74	26.97	46.00	-19.03
375.56	41.09	1.00	241	-0.44	40.65	46.00	-5.35
501.66	27.42	1.00	142	4.64	32.06	46.00	-13.94

Table 9 Test mode: 802.11g, Channel 1 [Antenna polarity Vertical]

Radiated Emission				*Correction Factors*	*Corrected Amplitude*	*FCC Class B (3 m)*	
Frequency (MHz)	*Amplitude (dBμV)*	*Ant. H. (m)*	*Table (°)*	*(dB)*	*(dBμV/m)*	*Limit (dBμV/m)*	*Margin (dB)*
50.61	29.47	1.00	61	4.41	33.88	40.00	-6.12
90.62	34.37	1.00	314	0.43	34.80	43.50	-8.70
125.79	35.84	1.00	203	-1.51	34.33	43.50	-9.17
375.56	33.65	1.00	247	-0.44	33.21	46.00	-12.79
625.34	31.57	1.00	179	9.50	41.07	46.00	-4.93
749.01	25.90	1.00	168	12.71	38.61	46.00	-7.39

Note:

1. Margin = Amplitude – limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude + Correction Factors
3. Correction factor = Antenna factor + (Cable Loss – Amplitude gain)

Table 10 Test mode: 802.11g, Channel 6 [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
102.75	28.73	1.00	51	-0.45	28.28	43.50	-15.22
125.79	27.28	1.00	339	-1.51	25.77	43.50	-17.73
140.34	31.23	1.00	192	-1.87	29.36	43.50	-14.14
345.25	27.54	1.00	283	-1.45	26.09	46.00	-19.91
375.56	41.16	1.00	243	-0.44	40.72	46.00	-5.28
501.66	28.64	1.00	105	4.64	33.28	46.00	-12.72

Table 11 Test mode: 802.11g, Channel 6 [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
90.62	35.48	1.00	202	0.43	35.91	43.50	-7.59
99.11	34.56	1.00	232	-0.21	34.35	43.50	-9.15
125.79	35.89	1.00	246	-1.51	34.38	43.50	-9.12
375.56	33.53	1.00	227	-0.44	33.09	46.00	-12.91
625.34	31.94	1.00	177	9.50	41.44	46.00	-4.56
749.01	25.09	1.00	154	12.71	37.80	46.00	-8.20

Table 12 Test mode: 802.11g, Channel 11 [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
102.75	28.66	1.00	91	-0.45	28.21	43.50	-15.29
125.79	27.05	1.00	7	-1.51	25.54	43.50	-17.96
141.55	30.54	1.00	195	-1.91	28.63	43.50	-14.87
375.56	41.13	1.00	217	-0.44	40.69	46.00	-5.31
386.47	27.30	1.00	228	-0.05	27.25	46.00	-18.75
501.66	28.09	1.00	98	4.64	32.73	46.00	-13.27

Table 13 Test mode: 802.11g, Channel 11 [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
34.85	27.08	1.00	230	7.01	34.09	40.00	-5.91
99.11	35.71	1.00	284	-0.21	35.50	43.50	-8.00
125.79	32.89	1.00	217	-1.51	34.40	43.50	-9.10
375.56	33.02	1.00	222	-0.44	32.58	46.00	-13.42
625.34	31.33	1.00	172	9.50	40.83	46.00	-5.17
749.01	25.81	1.00	188	12.71	38.52	46.00	-7.48

Table 14 Test mode: 802.11b, Channel 1 [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
103.96	28.01	1.00	215	-0.53	27.48	43.50	-16.02
125.79	28.35	1.00	10	-1.51	26.84	43.50	-16.66
141.55	31.86	1.00	109	-1.91	29.95	43.50	-13.55
375.56	40.90	1.00	223	-0.44	40.46	46.00	-5.54
501.66	27.35	1.00	107	4.64	31.99	46.00	-14.01
625.34	25.69	1.00	78	9.50	35.19	46.00	-10.81

Table 15 Test mode: 802.11b, Channel 1 [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
51.83	30.01	1.00	167	4.24	34.25	40.00	-5.75
90.62	35.69	1.00	245	0.43	36.12	43.50	-7.38
125.79	36.10	1.00	225	-1.51	34.59	43.50	-8.91
625.34	31.89	1.00	154	9.50	41.39	46.00	-4.61
749.01	24.96	1.00	164	12.71	37.67	46.00	-8.33
873.90	23.71	1.00	175	16.20	39.91	46.00	-6.09

Table 16 Test mode: 802.11b, Channel 6 [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
102.75	27.84	1.00	340	-0.45	27.39	43.50	-16.11
125.79	28.64	1.00	3	-1.51	27.13	43.50	-16.37
142.76	31.43	1.00	111	-1.94	29.49	43.50	-14.01
375.56	41.18	1.00	224	-0.44	40.74	46.00	-5.26
501.66	27.84	1.00	114	4.64	32.48	46.00	-13.52
626.55	25.13	1.00	91	9.53	34.66	46.00	-11.34

Table 17 Test mode: 802.11b, Channel 6 [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
37.27	28.17	1.00	198	6.68	34.85	40.00	-5.15
90.62	36.11	1.00	282	0.43	36.54	43.50	-6.96
125.79	36.08	1.00	211	-1.51	34.57	43.50	-8.93
375.56	33.32	1.00	216	-0.44	32.88	46.00	-13.12
625.34	31.54	1.00	165	9.50	41.04	46.00	-4.96
749.01	25.48	1.00	182	12.71	38.19	46.00	-7.81

Table 18 Test mode: 802.11b, Channel 11 [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
102.75	28.45	1.00	324	-0.45	28.00	43.50	-15.50
125.79	27.77	1.00	42	-1.51	26.26	43.50	-17.24
142.76	31.54	1.00	90	-1.94	29.60	43.50	-13.90
375.56	41.11	1.00	229	-0.44	40.67	46.00	-5.33
501.66	27.28	1.00	85	4.64	31.92	46.00	-14.08
625.34	25.20	1.00	81	9.50	34.70	46.00	-11.30

Table 19 Test mode: 802.11b, Channel 11 [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
50.61	29.61	1.00	139	4.41	34.02	40.00	-5.98
90.62	34.97	1.00	58	0.43	35.40	43.50	-8.10
125.79	36.64	1.00	228	-1.51	35.13	43.50	-8.37
500.45	26.77	1.00	204	4.58	31.35	46.00	-14.65
625.34	31.29	1.00	184	9.50	40.79	46.00	-5.21
749.01	25.41	1.00	146	12.71	38.12	46.00	-7.88

Table 20 Test mode: Standby mode [Antenna polarity Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
102.75	29.66	1.00	279	-0.45	29.21	43.50	-14.29
141.55	30.45	1.00	351	-1.91	28.54	43.50	-14.96
375.56	40.01	1.00	244	-0.44	39.57	46.00	-6.43
385.26	27.45	1.00	228	-0.09	27.36	46.00	-18.64
501.66	27.81	1.00	130	4.64	32.45	46.00	-13.55
626.55	13.93	1.00	224	9.53	32.46	46.00	-13.54

Table 21 Test mode: Standby mode [Antenna polarity Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table (°)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.61	30.83	1.00	155	8.37	39.20	40.00	-0.80
34.85	31.42	1.00	142	7.01	38.43	40.00	-1.57
89.41	34.64	1.00	173	0.50	35.14	43.50	-8.36
125.18	35.59	1.00	227	-1.48	34.11	43.50	-9.39
624.73	33.83	1.00	235	9.48	43.31	46.00	-2.69
749.62	26.21	1.00	213	12.72	38.93	46.00	-7.07